

because high oxygen content of oxygen-containing gas leads to the possibility of explosion and (from the economic) standpoint of cost performance." Therefore, the oxygen concentration described in Amadio is limited to a range of general oxygen concentration in air. In fact, in Amadio, there are only examples using "air".

In the process of the present invention, in order to provide a process which is capable of enhancing the cumene hydroperoxide (CHP) production per unit volume of the reaction fluid in the reactor, thus miniaturizing the reactor allowing required CHP production or capable of enhancing the CHP production in an existing reactor "from the industrial point of view", as described in paragraph 1 of page 2 to paragraph 1 of page 3, the features as clearly stated in claim 1 are required, namely maintaining the oxygen concentration not less than 22 mol% nor more than 50 mol% and a CHP production of not less than 22 kg/m<sup>3</sup>/hour. The impressive beneficial technical effects that result are clearly understood by comparing the Examples according to the invention with the Comparative Examples. The examiner is reminded that the results presented in the original specification accompanied by the executed declaration signed by the inventors would have significant evidentiary weight, comparable to the weight given to an executed declaration. It is well established by the Federal Circuit that "the examiner must consider comparative data presented in the specification which is intended to illustrate the claimed invention in reaching a conclusion in regard to the obviousness of claims." *In re Margolis*, 785 F.2d 1029, 228 U.S.P.Q. 1123, 1129 (Fed. Cir. 1993). Namely, when the oxygen concentration is too high, although the CHP production is increased, the oxidation efficiency is reduced and amounts of unwanted by-produced DMPC and AP are increased (*see* Comparative example 2). On the other hand, when the oxygen concentration is too low, the CHP production is reduced, and the above technical effect that "enhancing the CHP production per unit volume of the reaction fluid in the reactor, thus miniaturizing the reactor allowing required CHP production or capable of enhancing the CHP production in an existing reactor" cannot be attained (*see* Comparative example 1). Therefore, by satisfying the clearly special requirements of claim 1, the proper oxidation efficiency and CHP production can be attained.

The process of the present invention is completely different from US 6,043,399 and it is no way suggested by it.

As for claims 5, 9 and 10-12, the examiner relies on a secondary reference for the features of these specific claims. These claims are believed to be fully patentable by virtue of their dependency from patentable claims but the following remarks are presented for completion of the record.

As to Zakoshansky et al (US 5,767,322) as explained above, the object of present invention is, as described in paragraph 1 of page 2 to paragraph 1 of page 3, to provide a method which is not simply a laboratory practice, but is in the real world and on an industrial scale capable of enhancing the CHP production per unit volume of the reaction fluid in the reactor, thus miniaturizing the reactor allowing required CHP production or capable of enhancing the CHP production in an existing reactor "from the industrial point of view".

In Examples of Zakoshansky identified by the examiner, "Shott filter" was used as a sparger when using a reactor 30 mm in diameter. Applicants are not entirely certain of what a "Shott Filter" is. Probably, "Shott" is a misspelling of "Schott" because there is a famous German company making glassware named "Schott", which has been selling various laboratory instruments. So, for purposes of this response applicants presume that a glass filter of Schott was used as the sparger in Zakoshansky.

If this presumption is correct, the glass filter described in Zakoshansky is different from the sparger specified in the present invention in the structure, and it is not easy to presume the present invention from Zakoshansky. Even if the "Shott filter" used in Zakoshansky is a glass filter, the reactor of "30 mm in diameter" described in Zakoshansky cannot be identical with the sparger of the present invention used in the industrial scale. The present invention is not suggested by Zakoshansky.

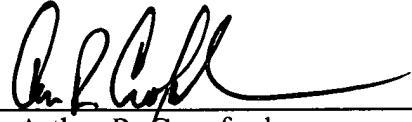
For the above reasons it is respectfully submitted that the claims of this application define inventive subject matter. Reconsideration and allowance are solicited.

KUMA et al.  
Appl. No. 10/591,439  
April 15, 2008

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: \_\_\_\_\_



Arthur R. Crawford  
Reg. No. 25,327

ARC:eaw  
901 North Glebe Road, 11th Floor  
Arlington, VA 22203-1808  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100